CIVIL PRO
AN ISO 9001 : 2008 COMPANY &NABL ACCREDITED LABORATORY AS PER ISO/IEC 17025:2005
4, 7TH MAIN MALLESWARAM, BANGALORE -3
Certificate No.: TC-5548

QC ABSTRACT

NAME OF WORK: Improvements to Roads at Deo Residency and Legacy Area of Jakkur Plantation in Ward No 07, Byatarayanapura.

SL NO	Item Of Work	Name of Test	Frequency of Test/Quantity	Executed Quantity	Number of Tests Required	Number of Tests Conducted
		Materials				
1	Cement	Fineness by dry sieving	One Test		1	1
		Finess by Air permeablity method	One Test		1	1
		Density	One Test		1	1
		Standard Consistency	One Test		1	1
		Initial Setting time	One Test		1	1
		Final Setting time	One Test		1	1
		Soundness (Le Chatelier's Method)	One Test		1	1
		Compressive Strength	One Test		1	1
2	Coarse aggregate(40 mm down size)	SIEVE ANALYSIS	One Test		1	1
		Flakiness Index	One Test		1	1
		Elongation Index	One Test		1	1
		Specific Gravity	One Test		1	1
		Bulk Density(Loose)	One Test		1	1
		Bulk Density(Compacted)	One Test		1	1
		Water Absorption	One Test		1	1
3	Coarse aggregate(20 mm down size)	SIEVE ANALYSIS	One Test		1	1
		Flakiness Index	One Test		1	1
		Elongation Index	One Test		1	1
		Specific Gravity	One Test		1	1
		Bulk Density(Loose)	One Test		1	1
		Bulk Density(Compacted)	One Test		1	1
		Water Absorption	One Test		1	1
		Aggregate crushing Value	One Test		1	1
		Aggregate Impact Value	One Test		1	1
4	Fine aggregate	SIEVE ANALYSIS	One Test		1	1
		Water Absorption	One Test		1	1
		Specific Gravity	One Test		1	1
		Material finer than 75 micron	One Test		1	1
5	Block(400*150*200)	BLOCK DENSITY	One Test		1	1
		WATER ABSORPTION	One Test		1	1
		DIMENSION ANALYSIS	One Test		1	1
		COMPRESSIVE STRENGTH	One Test		1	1
6	KERB	Core Compressive strength	One Test		1	1
		Corrected Cylinder Compressive strength	One Test		1	1
		Equivalent Cube Compressive strength	One Test		1	1
7	Precast (100mm)	Core Compressive Strength	One Test		1	1
		Corrected Cylinder Compressive Strength	One Test		1	1
		Equivalent Cube Compressive Strength	One Test		1	1
8	PCC(M15)	Compressive Strength(7days and 28days)	2 set /6-15 cum	13.6	4	4

Assistant Executive Engineer,
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9	WMM	Sieve Analysis	One Test		1	1
		Impact Value	One Test		1	1
		Flakiness Index	One Test		1	1
		Elongation Index	One Test		1	1
10	BC	SIEVE ANALYSIS	One Test		1	1
		STRIPPING VALUE	One Test		1	1
		Flakiness Index	One Test		1	1
		Elongation Index	One Test		1	1
		IMPACT VALUE	One Test		1	1
		Specific gravity	One Test		1	1
		Water Absorption	One Test		1	1
		Marshal Stability	One Test		1	1
		Marshal flow	One Test		1	1
		Percent air Voids	One Test		1	1
		Percent Voids in mineral	One Test		1	1
		Percent Voids filled with Bitumen	One Test		1	1
		Density	One Test		1	1
		Gradation	One Test		1	1
11	BITUMEN	Ductility	One Test		1	1
		Softening Point	One Test		1	1
		Penetration	One Test		1	1
		Flash Point	One Test		1	1
		Fire Point	One Test		1	1
12	TACK COAT	Rate of spread	One Test		1	1
13	Paver Block	Compressive Strength	One Test		1	1
		Water Absorption	One Test		1	1

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Yelahanka Zone, B.B.M.P.,
Bangalore.

Format No: CP/TF/01

TEST REPORT OF PHYSICAL PROPERTIES OF CEMENT - 53 Grade

Lab ID	:	**CP-2020-09-14-37** **Date: 24-08-20**
Customer	:	Assistant Executive Engineer, Kodigehalli Sub Division, BBMP, Bangalore.
Address	:	Kodigehalli Sub Division, BBMP, Bangalore.
Project Name	:	Establishment of RO Plant Children Play Eyuipments and Open Gym Equipments in Kempapura and Surrounding Areas in Ward No.07, Byatarayanapura Kodigehalli Sub Divison.
Agency	:	Executive Engineer, Karnataka Rural Infrastructure Development Ltd, #280, 59th Cross Road, 17th 'C' Main Road, 3rd 'Y' Block, Rajajinagara, Bangalore-560010
Customer's Reference	:	BBMP/EE/BTP/WO/91/2017-18
Source of Sample	:	Sample supplied by Agency
Sample Condition	:	Satisfactory
Date of Receipt	:	21-08-20
Sample Type	:	Birla Super 53grade
Reference to BIS codes	:	IS 12269 : 2013, 53 Grade Ordinary Portland cement Specification , IS 4031 (Part 1,2 3,4,5, 6,11):1988 IS 4031 Part 1 DETERMINATION OF FINENESS BY DRY SIEVING, Clause 4.4 IS 4031 Part 2, Determination of Fineness by Blaine Air Permeability Method, Clause 5 IS 4031 Part 3, Determination of Soundness, Clause 5,Clause 6 IS 4031 Part 4, Determination of Consistency of Standard Cement Paste, Clause 5 IS 4031 Part 5, Determination of Initial & Final Setting Time, Clause 5 IS 4031 Part 11,DETERMINATION OF DENSITY , Clause 6
Date of test	:	21-08-20
Environmental Conditions during test	:	Temperature: 26°C Humidity: 72%

Sl.No.	Physical properties	Results	Requirement as per IS 12269: 2013
1	Fineness by dry sieving (%)	2.2	_
2	Finess by Air permeablity method (m^2/kg,Min)	249.5	225m^2/kg, Min
3	Density (gm/cc)	3.14	_
4	Standard Consistency (%)	27.5%	Not specified
5	Initial Setting time	170 minutes	Not less than 30 minutes
6	Final Setting time	260 minutes	Not more than 600 minutes
7	Soundness (Le Chatelier's Method)	1.5mm	Not more than 10 mm

Note:

The results pertain to the samples received and tested.

All information furnished by Customer/Representative

Any correction in the report will make this report invalid

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Samples will be disposed after 90 days from the date of issue of test certificate

AEE(W)

Assistant Executive Engineer,
Kodigehalli Sub Division,
Yelahanka Zone, B.B.M.P.,
Bangalore.

CIVIL Pro
Sig.....
Date.....
BANGALORE

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R RUDRAPRASAD
Authorized Signatory
Technical Manager

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TEST REPORT OF PHYSICAL PROPERTIES OF CEMENT - 53 Grade

Lab ID	:	**CP-2020-09-14-38** **Date: 24-08-20**
Customer	:	Assistant Executive Engineer, Kodigehalli Sub Division, BBMP, Bangalore.
Address	:	Kodigehalli Sub Division, BBMP, Bangalore.
Project Name	:	Improvements to Roads at Deo Residency and Legacy Area of Jakkur Plantation in Ward No 07, Byatarayanapura.
Agency	:	Executive Engineer, Karnataka Rural Infrastructure Development Ltd, #280, 59th Cross Road, 17th 'C' Main Road, 3rd 'Y' Block, Rajajinagara, Bangalore-560010
Customer's Reference	:	BBMP/EE/BTP/WO/107/2017-18
Source of Sample	:	Sample supplied by Agency
Sample Condition	:	Satisfactory
Date of Receipt	:	21-08-20
Sample Type	:	Birla Super 53grade
Reference to BIS codes	:	IS 12269 : 2013, 53 Grade Ordinary Portland cement Specification , IS 4031 (Part 1,2 3,4,5, 6,11):1988 IS 4031 Part 1 DETERMINATION OF FINENESS BY DRY SIEVING, Clause 4.4 IS 4031 Part 2, Determination of Fineness by Blaine Air Permeability Method, Clause 5 IS 4031 Part 3, Determination of Soundness, Clause 5,Clause 6 IS 4031 Part 4, Determination of Consistency of Standard Cement Paste, Clause 5 IS 4031 Part 5, Determination of Initial & Final Setting Time, Clause 5 IS 4031 Part 11,DETERMINATION OF DENSITY , Clause 6
Date of test	:	21-08-20
Environmental Conditions during test	:	Temperature: 26°C Humidity: 72%

Sl.No.	Physical properties	Results	Requirement as per IS 12269: 2013
1	Fineness by dry sieving (%)	1.75	_
2	Finess by Air permeablity method (m^2/kg,Min)	281.4	225m^2/kg, Min
3	Density (gm/cc)	3.14	_
4	Standard Consistency (%)	29.5%	Not specified
5	Initial Setting time	175 minutes	Not less than 30 minutes
6	Final Setting time	280 minutes	Not more than 600 minutes
7	Soundness (Le Chatelier's Method)	1.5mm	Not more than 10 mm

Note:

The results pertain to the samples received and tested.

All information furnished by Customer/Representative

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AE(UC) Assistant Executive Engineer, Kodigehalli Sub Division, Yelahanka Zone, B.B.M.P., Bangalore.

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Authorized Signatory
Technical Manager

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Certificate No.: TC-5548

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TEST REPORT OF PHYSICAL PROPERTIES OF CEMENT - 53 Grade

Lab ID	:	**CP-2020-09-14-38** **Date: 18-09-20**
Customer	:	Assistant Executive Engineer, Kodigehalli Sub Division, BBMP, Bangalore.
Address	:	Kodigehalli Sub Division, BBMP, Bangalore.
Project Name	:	Improvements to Roads at Deo Residency and Legacy Area of Jakkur Plantation in Ward No 07, Byatarayanapura.
Agency	:	Executive Engineer, Karnataka Rural Infrastructure Development Ltd, #280, 59th Cross Road, 17th 'C' Main Road, 3rd 'Y' Block, Rajajinagara, Bangalore-560010
Customer's Reference	:	BBMP/EE/BTP/WO/107/2017-18
Source of Sample	:	Sample supplied by Agency
Sample Condition	:	Satisfactory
Date of Receipt	:	21-08-20
Sample Type	:	Birla Super 53grade
Reference to BIS codes	:	IS 12269 : 2013, 53 Grade Ordinary Portland cement Specification , IS 4031 Part 4, Determination of Consistency of Standard Cement Paste, Clause 5 IS 4031 Part 6, Determination of Compressive Strength, Clause 6
Date of test	:	21-08-20
Environmental Conditions during test	:	Temperature: 26˚C Humidity: 72%

Compressive Strength

Sl.No.	Physical properties	Results	Requirement as per IS 12269: 2013
1	3 Days	29.0N/mm^2	Not less than 27 N/mm^2
2	7 Days	38.5N/mm^2	Not less than 37 N/mm^2
3	28 Days	57.5N/mm^2	Not less than 53 N/mm^2

Note:
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N.D
AE(09)

Assistant Executive Engineer,
Kodigehalli Sub Division,
Yelahanka Zone, B.B.M.P.,
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CIVIL Pro
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Date

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HIGHWAY & BUILDING MATERIALS TESTING LABORATORY | STRUCTURAL |
GEO TECHNICAL | PROJECT MANAGEMENT | SURVEYING SERVICES |

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TEST REPORT ON COARSE AGGREGATES

Lab ID	:	**CP-2020-09-14-38** **Date: 24-08-20**
Customer	:	Assistant Executive Engineer, Kodigehalli Sub Division, BBMP, Bangalore.
Address	:	Kodigehalli Sub Division, BBMP, Bangalore.
Project Name	:	Improvements to Roads at Deo Residency and Legacy Area of Jakkur Plantation in Ward No 07, Byatarayanapura.
Agency	:	Executive Engineer, Karnataka Rural Infrastructure Development Ltd, #280, 59th Cross Road, 17th 'C' Main Road, 3rd 'Y' Block, Rajajinagara, Bangalore-560010
Customer's Reference	:	BBMP/EE/BTP/WO/107/2017-18
Source of Sample	:	Sample supplied by Agency
Sample condition	:	Satisfactory
Date of Receipt	:	21-08-20
Sample Type	:	40mm down size coarse aggregate
Reference to BIS codes	:	IS: 383:2016 (Specification for Coarse and fine Aggregates) IS: 2386 :1963(Part - 1,3,4) RA2011 IS 2386 Part 1: Particle Size and Shape IS 2386 Part 3: Specific gravity, Density, Voids,Water Absorption IS 2386 Part 4: Mechanical Properties
Date of test	:	21-08-20

SIEVE ANALYSIS (PARTICLE SIZE DISTRIBUTION) OF 40MM DOWN COARSE AGGREGATE:

Total weight taken : 15000 grams

Sample No.	Sieve No.	Weight Retained in gms	Cumulative Weight Retained in gms	% Cumulative Weight Retained	% Passing	Required as per IS 383:2016
1	80 mm	0	0	0.0	100	100
2	40 mm	242	242	1.6	98.4	90-100
3	20 mm	5437	5679	37.9	62.1	30-70
4	10 mm	4339	10018	66.8	33.2	10-35
5	4.75 mm	4649	14667	97.8	2.2	0-5
6	Pan	333	15000	100.0	0	---

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TEST REPORT ON COARSE AGGREGATES

Lab ID : **CP-2020-09-14-38** **Date: 24-08-20**

PHYSICAL PROPERTIES

Sl.no	Tests	Result	Requirements as per IS:383-2016
1	Flakiness Index(%)	11.2	Combined Flakiness & Elongation Index Shall not Exceed 40% for Uncrushed & Crushed Aggregate
2	Elongation Index(%)	11.3	
3	Specific Gravity	2.65	_
4	Bulk Density(Loose) (Kg/l)	1.49	_
5	Bulk Density(Compacted) (Kg/l)	1.52	_
6	Water Absorption(%)	0.20	_

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R RUDRAPRASAD
Authorized Signatory
Technical Manager

AE(Civil)

Assistant Executive Engineer,
Kodigehalli Sub Division,
Yelahanka Zone, B.B.M.P.
Bangalore.

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Format No: CP/TF/01

TEST REPORT ON COARSE AGGREGATES

Lab ID	:	**CP-2020-09-14-38** **Date: 24-08-20**
Customer	:	Assistant Executive Engineer, Kodigehalli Sub Division, BBMP, Bangalore.
Address	:	Kodigehalli Sub Division, BBMP, Bangalore.
Project Name	:	Improvements to Roads at Deo Residency and Legacy Area of Jakkur Plantation in Ward No 07, Byatarayanapura.
Agency	:	Executive Engineer, Karnataka Rural Infrastructure Development Ltd, #280, 59th Cross Road, 17th 'C' Main Road, 3rd 'Y' Block, Rajajinagara, Bangalore-560010
Customer Reference	:	BBMP/EE/BTP/WO/107/2017-18
Source of Sample	:	Sample supplied by Agency
Sample Condition	:	Satisfactory
Date of Receipt	:	21-08-20
Sample Type/ Size	:	20mm down size coarse aggregate
Reference to BIS codes	:	IS: 383:2016 (Specification for Coarse and fine Aggregates) IS: 2386 :1963(Part - 1,3,4) RA2011 IS 2386 Part 1: Particle Size and Shape IS 2386 Part 3: Specific gravity, Density, Voids,Water Absorption IS 2386 Part 4: Mechanical Properties
Date of test	:	21-08-20

SIEVE ANALYSIS (PARTICLE SIZE DISTRIBUTION) OF 20MM DOWN COARSE AGGREGATE:

Total weight taken : 5000 grams

Sample No.	Sieve No.	Weight Retained in gms	Cumulative Weight Retained in gms	% Cumulative Weight Retained	% Passing	Required as per IS 383:2016
1	40 mm	0	0	0	100	100
2	20 mm	240	240	4.8	95.2	90-100
3	10 mm	2567	2807	56.1	43.9	25-55
4	4.75 mm	2030	4837	96.7	3.3	0-10
5	Pan	163	5000	100	0	_

Assistant Executive Engineer,
Kodigehalli Sub Division,
Yelahanka Zone, B.B.M.P.,
Bangalore.

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TEST REPORT ON COARSE AGGREGATES

Lab ID : **CP-2020-09-14-38** **Date: 24-08-20**

PHYSICAL PROPERTIES

Sl.no	Tests	Result	Requirements as per IS:383-2016
1	Flakiness Index(%)	9.8	Combined Flakiness & Elongation Index Shall not Exceed 40% for Uncrushed & Crushed Aggregate
2	Elongation Index(%)	10.3	
3	Specific Gravity	2.65	_
4	Bulk Density(Loose) (Kg/l)	1.5	_
5	Bulk Density(Compacted) (Kg/l)	1.52	_
6	Water Absorption(%)	0.23	_
7	Aggregate crushing Value(%)	22.7	Max 30% for Aggregates to be used in concrete for wearing Surface, In case Aggregate Crushing Value Exceeds 30% then the test for ten percent fines should be conducted for Aggregates to be used in concrete other than for wearing Surface.
8	Aggregate Impact Value(%)	24.6	30% for Aggregates to be used in concrete for wearing Surface, 45% for Aggregates to be used in concrete other than for wearing Surface.

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R RUDRAPRASAD
Authorized Signatory
Technical Manager

AE (Civil)

Assistant Executive Engineer
Kodigehalli Sub Division,
Yelahanka Zone, B.B.M.P.,
Bangalore.

End of Report

Format No: CP/TF/01

TEST REPORT OF FINE AGGREGATE

Lab ID : **CP-2020-09-14-38** **Date: 24-08-20**

Customer : Assistant Executive Engineer, Kodigehalli Sub Division, BBMP, Bangalore.

Address : Kodigehalli Sub Division, BBMP, Bangalore.

Project Name : Improvements to Roads at Deo Residency and Legacy Area of Jakkur Plantation in Ward No 07, Byatarayanapura.

Agency : Executive Engineer, Karnataka Rural Infrastructure Development Ltd, #280, 59th Cross Road, 17th 'C' Main Road, 3rd 'Y' Block, Rajajinagara, Bangalore-560010

Customer's Reference : BBMP/EE/BTP/WO/107/2017-18

Source of Sample : Sample supplied by Agency

Sample Condition : Satisfactory

Date of Receipt : 21-08-20

Sample Type : Fine Aggregate

Reference to BIS codes : IS 383 : 2016 (Specification for Coarse and fine Aggregates)
IS: 2386 :1963(Part - 1, 3) RA2012
IS 2386 Part 1: Particle Size and Shape
IS 2386 Part 3: Specific gravity, Density, Voids,Water Absorption

Date of test : 21-08-20

Total weight taken : 1000 grams

Sl.no	Sieve Size	Weight Retained (gms)	Cumulative Weight Retained (gms)	% Cumulative Weight Retained	% Passing	Requirement as per IS 383:2016			
						Grading Zone I	Grading Zone II	Grading Zone III	Grading Zone IV
1	10 mm	0	0	0.0	100.0	100	100	100	100
2	4.75 mm	78	78	7.8	92.2	90-100	90-100	90-100	95-100
3	2.36 mm	65	143	14.3	85.7	60-95	75-100	85-100	95-100
4	1.18 mm	244	387	38.7	61.3	30-70	55-90	75-100	90-100
5	600 micron	215	602	60.2	39.8	15-34	35-59	60-79	80-100
6	300 micron	178	780	78.0	22.0	5-20	8-30	12-40	15-50
7	150 micron	141	921	92.1	7.9	0-10	0-10	0-10	0-15
8	Pan	79	1000	100.0	0.0	---	---	---	---

Result :The tested Sample Conforms to Grading Zone II

Assistant Executive Engineer,
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Bangalore.

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TEST REPORT OF FINE AGGREGATE

Lab ID : **CP-2020-09-14-38** **Date: 24-08-20**

PHYSICAL PROPERTIES

Sl.no	Tests	Result	Requirements as per IS 383:2016
1	Water Absorption(%)	1.05	_
2	Specific Gravity	2.51	_
3	Material finer than 75 micron(%)	6.9	Uncrushed fine Aggregate Max 3%, Crushed Fine aggregate Max 15%, Mixed Fine aggregate Max 12%, Manufactured Fine aggregate Max 10%

Note:
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AE(Civil)

Assistant Executive Engineer,
Kodigehalli Sub Division,
Yelahanka Zone, B.B.M.P.,
Bangalore.

CIVIL Pro Sig Date BANGALORE

FOR CIVIL Pro.
R RUDRAPRASAD
Authorized Signatory
Technical Manager

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Format No: CP/TF/01

TEST REPORT ON PHYSICAL REQUIREMENTS OF SOLID CONCRETE BLOCKS

Lab ID	:	**CP-2020-09-14-38** **Date: 12-09-20**
Customer	:	Assistant Executive Engineer, Kodigehalli Sub Division, BBMP, Bangalore.
Address	:	Kodigehalli Sub Division, BBMP, Bangalore.
Project Name	:	Improvements to Roads at Deo Residency and Legacy Area of Jakkur Plantation in Ward No 07, Byatarayanapura.
Agency	:	Executive Engineer, Karnataka Rural Infrastructure Development Ltd, #280, 59th Cross Road, 17th 'C' Main Road, 3rd 'Y' Block, Rajajinagara, Bangalore-560010
Customer's Reference	:	BBMP/EE/BTP/WO/107/2017-18
Source of Sample	:	Sample supplied by Agency
Sample Condition	:	Satisfactory
Date of Receipt	:	09-09-20
Sample Type/Size	:	Solid concrete blocks size (400X150X200)mm
Reference to BIS codes	:	IS : 2185 (Part 1) : 2005(RA 2010) Concrete Masonry Specification Part 1:Hollow and Solid Concrete Blocks (Dimensions -Annex-B, Clause 9.2 and 10 , Block density Annex -C Clause 9.3 and10, Compressive strength Annex -D Clause 9.4 and 10, Water absorption Annex -E Clause 9.5 and 10)
Date of test	:	09-09-20

BLOCK DENSITY:

Sl. No.	Measurement of overall Dimensions of Individual Blocks			Overall Volume of the Block in Cubic Centimetres	Weight of Oven Dried Block in Kilograms to the nearest 10 Gram	Block Density in Kg/cum*10^6	Avg.Block Density in (Kg/cum)	As per IS 2185(Part 1) :2005 (RA 2010)
	Length	Breadth	Height					
	mm	mm	mm	(Cm^3)	Kg	Kg/m^3	Kg/m^3	
1	401	150	202	12150	33.587	2764.3	2664.6	Not less than 1800Kg/m^3
2	401	149	198	11830	32.209	2722.6		
3	405	153	202	12517	31.379	2506.9		

WATER ABSORPTION:

Sl. No.	Wet weight after water absorption	Dry weight (Oven dry)	Water Absorption	Avg.Water Absorption	As per IS 2185(Part 1):2005 (RA 2010)
	kg	kg	%	%	
1	33.91	32.25	4.89	4.25	Shall not be more than 10% by mass
2	33.57	32.14	4.28		
3	33.44	32.24	3.59		

Assistant Executive Engineer,
Kodigehalli Sub Division,
Yelahanka Zone, B.B.M.P.,
Bangalore.

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Lab ID : **CP-2020-09-14-38** **Date: 12-09-20**

DIMENSION ANALYSIS

Sl.no	Length mm	Breadth mm	Height mm	Requirement as per IS 2185(Part 1):2005
1	402	153	200	Length : ± 5mm Breadth : ± 3mm Height : ± 3mm
2	400	153	202	
3	401	152	202	
4	401	150	200	
5	402	151	200	
6	401	152	201	
7	403	152	199	
8	399	153	200	
9	403	150	202	
10	402	150	200	
11	403	150	202	
12	400	151	201	
13	402	151	202	
14	402	149	202	
15	399	151	202	
16	399	153	202	
17	402	152	203	
18	404	152	199	
19	404	151	202	
20	401	149	203	
Average of 20	**402**	**151**	**201**	

Assistant Executive Engineer,
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Lab ID : **CP-2020-09-14-38** **Date: 12-09-20**

COMPRESSIVE STRENGTH:

Sl. No.	Size of solid block		Area	Failure Load	Compressive strength	Average Compressive strength
	Length	Breadth				
	mm	mm	(mm^2)	(KN)	N/mm^2	(N/mm^2)
1	400	153	61038	273.4	4.5	4.5
2	400	153	61106	277.0	4.5	
3	401	152	61123	278.9	4.6	
4	401	150	60093	279.3	4.6	
5	402	151	60775	277.7	4.6	
6	401	152	60842	280.9	4.6	
7	403	152	61378	273.4	4.5	
8	399	153	61077	274.2	4.5	

As per IS Requirements (Table 2, Clause 5.1, 5.2 and 9.4)

Compressive strength		
Grade	**Minimum average**	**Minimum Individual units.**
C (5.0)	5.00 N/mm^2	4.00 N/mm^2
C (4.0)	4.00 N/mm^2	3.20 N/mm^2

Note:
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Any correction in the report will make this report invalid
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Samples will be disposed after 90 days from the date of issue of test certificate

N.D
AE(Ref)

Assistant Executive Engineer,
Kodigehalli Sub Division,
Yelahanka Zone, B.B.M.P.,
Bangalore.

CIVIL Pro
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Date.....
BANGALORE

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****End of Report****

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TEST REPORT OF PRECAST COVER SLAB

Lab ID	:	**CP-2020-09-14-38** **Date: 04-09-20**
Customer	:	Assistant Executive Engineer, Kodigehalli Sub Division, BBMP, Bangalore.
Address	:	Kodigehalli Sub Division, BBMP, Bangalore.
Project Name	:	Improvements to Roads at Deo Residency and Legacy Area of Jakkur Plantation in Ward No 07, Byatarayanapura.
Agency	:	Executive Engineer, Karnataka Rural Infrastructure Development Ltd, #280, 59th Cross Road, 17th 'C' Main Road, 3rd 'Y' Block, Rajajinagara, Bangalore-560010
Customer's Reference	:	BBMP/EE/BTP/WO/107/2017-18
Source of Sample	:	Sample supplied by Agency
Sample Condition	:	Satisfactory
Date of Receipt	:	31-08-20
Sample Type /Size	:	Precast Cover Slab (100mm)
Reference to BIS codes	:	IS: 516 - 1959 Methods of Tests for Strength of Concrete
Date of test	:	31/08/2020

Sl. No.	Identification Mark	Diameter of the core	Height of the core	Weight of the core	Area	Failure Load	Core Compressive strength	Corrected Cylinder Compressive strength	Equivalent Cube Compressive strength
		(mm)	(mm)	(kg)	(Sq.mm)	(KN)	(N/mm^2)	(N/mm^2)	(N/mm^2)
1	Cover Slab-1	75.51	100.48	1.116	4477	80.9	18.1	16.8	21.0
2	Cover Slab-2	75.49	100.52	1.122	4475	82.3	18.4	17.1	21.4
3	Cover Slab-3	75.50	100.51	1.118	4476	81.5	18.2	16.9	21.2

Note:

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Assistant Executive Engineer,
Kodigehalli Sub Division,
Yelahanka Zone, B.B.M.P.,
Bangalore.

FOR CIVIL Pro.

CIVIL Pro BANGALORE
Sig.
Date

R RUDRAPRASAD
Authorized Signatory
Technical Manager

****End of Report****

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TEST REPORT OF CEMENT CONCRETE KERB STONE

Lab ID : **CP-2020-09-14-38** **Date: 07-09-20**

Customer : Assistant Executive Engineer, Kodigehalli Sub Division, BBMP, Bangalore.

Address : Kodigehalli Sub Division, BBMP, Bangalore.

Project Name : Improvements to Roads at Deo Residency and Legacy Area of Jakkur Plantation in Ward No 07, Byatarayanapura.

Agency : Executive Engineer, Karnataka Rural Infrastructure Development Ltd, #280, 59th Cross Road, 17th 'C' Main Road, 3rd 'Y' Block, Rajajinagara, Bangalore-560010

Customer's Reference : BBMP/EE/BTP/WO/107/2017-18

Source of Sample : Sample supplied by Agency

Sample Condition : Satisfactory

Date of Receipt : 03-09-20

Sample Type /Size : CC Kerb Stone/ 450*200*400mm

Reference to BIS codes : IS: 516 - 1959 Methods of Tests for Strength of Concrete

Date of test : 03/09/2020

Sl. No.	Identification Mark	Diameter of the core	Height of the core	Weight of the core	Area	Failure Load	Core Compressive strength	Corrected Cylinder Compressive strength	Equivalent Cube Compressive strength
		(mm)	(mm)	Kg	(Sq.mm)	(KN)	(N/mm2)	(N/mm2)	(N/mm2)
1	A	150.01	200.51	3.164	17670	182.1	10.3	10.3	12.9
2	B	150.03	200.49	3.193	17675	185.2	10.5	10.5	13.1
3	C	150.01	200.50	3.115	17670	185.1	10.5	10.5	13.1

Note:

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All information furnished by the Customer/Representative
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Samples will be disposed after 90 days from the date of issue of test certificate

AE (W2) N.D

Assistant Executive Engineer,
Kodigehalli Sub Division,
Yelahanka Zone, B.B.M.P.,
Bangalore.

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CIVIL Pro BANGALORE Sig. Date

R RUDRAPRASAD
Authorized Signatory
Technical Manager

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Format No: CP/TF/01

TEST REPORT OF CEMENT CONCRETE CUBES

Lab ID	:	**CP-2020-09-14-38** **Date: 04/09/2020**
Customer	:	Assistant Executive Engineer, Kodigehalli Sub Division, BBMP, Bangalore.
Address	:	Kodigehalli Sub Division, BBMP, Bangalore.
Project Name	:	Improvements to Roads at Deo Residency and Legacy Area of Jakkur Plantation in Ward No 07, Byatarayanapura.
Agency	:	Executive Engineer, Karnataka Rural Infrastructure Development Ltd, #280, 59th Cross Road, 17th 'C' Main Road, 3rd 'Y' Block, Rajajinagara, Bangalore-560010
Customer's Reference	:	BBMP/EE/BTP/WO/107/2017-18
Source of Sample	:	Sample supplied by Agency
Sample Condition	:	Satisfactory
Date of Receipt	:	31-08-20
Customer ID	:	PCC
Sample Type /Size	:	150X150X150 mm
Sample grade/Age	:	M15 / 7 Days Compressive Strength
Reference to BIS codes	:	IS: 516 - 1959 Methods of Tests for Strength of Concrete Cl.5
Date of test	:	04/09/2020

Sl. No.	Identification Mark	Grade of concrete	Date of Casting	Date of Testing	Dimension of the Specimen (mm)	Cross sectional area (Sq.mm)	Weight of the sample (kg)	Failure Load (KN)	Compressive strength (N/mm^2)	Average Compressive Strength (N/mm^2)
1	PCC	M15	28/08/2020	04/09/2020	150.60 X 150.36 X 149.98	22645	**8.361**	278.0	12.3	12.3
2	PCC	M15	28/08/2020	04/09/2020	150.89 X 150.75 X 151.30	22747	**8.311**	278.4	12.2	
3	PCC	M15	28/08/2020	04/09/2020	151.45 X 149.92 X 149.05	22706	**8.672**	282.2	12.4	

Note:
The results pertain to the samples received and tested.
All information furnished by Customer/Representative
Any correction in the report will make this report invalid
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Samples will be disposed after 90 days from the date of issue of test certificate

AE(Civil)

Assistant Executive Engineer,
Kodigehalli Sub Division,
Yelahanka Zone, B.B.M.P.
Bangalore.

CIVIL Pro
Sig.
Date
BANGALORE

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Authorized Signatory
Technical Manager

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Format No: CP/TF/01

TEST REPORT OF CEMENT CONCRETE CUBES

Lab ID : **CP-2020-09-14-38** **Date: 25/09/2020**

Customer : Assistant Executive Engineer, Kodigehalli Sub Division, BBMP, Bangalore.

Address : Kodigehalli Sub Division, BBMP, Bangalore.

Project Name : Improvements to Roads at Deo Residency and Legacy Area of Jakkur Plantation in Ward No 07, Byatarayanapura.

Agency : Executive Engineer, Karnataka Rural Infrastructure Development Ltd, #280, 59th Cross Road, 17th 'C' Main Road, 3rd 'Y' Block, Rajajinagara, Bangalore-560010

Customer's Reference : BBMP/EE/BTP/WO/107/2017-18

Source of Sample : Sample supplied by Agency

Sample Condition : Satisfactory

Date of Receipt : 31-08-20

Customer ID : PCC

Sample Type /Size : 150X150X150 mm

Sample grade/Age : M15 / 28 Days Compressive Strength

Reference to BIS codes : IS: 516 - 1959 Methods of Tests for Strength of Concrete Cl.5

Date of test : 25/09/2020

Sl. No.	Identification Mark	Grade of concrete	Date of Casting	Date of Testing	Dimension of the Specimen (mm)	Cross sectional area (Sq.mm)	Weight of the sample (kg)	Failure Load (KN)	Compressive strength (N/mm^2)	Average Compressive Strength (N/mm^2)
1	PCC	M15	28/08/2020	25/09/2020	151.64 X 149.15 X 149.63	22617	**8.028**	391.8	17.3	17.4
2	PCC	M15	28/08/2020	25/09/2020	149.88 X 150.96 X 150.05	22625	**8.008**	387.8	17.1	
3	PCC	M15	28/08/2020	25/09/2020	150.90 X 151.50 X 150.71	22861	**8.911**	408.9	17.9	

Note:
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Assistant Executive Engineer,
Kodigehalli Sub Division,
Yelahanka Zone, B.B.M.P.
Bangalore.

CIVIL Pro Sig Date BANGALORE

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R RUDRAPRASAD
Authorized Signatory
Technical Manager

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Format No: CP/TF/01

TEST REPORT OF CEMENT CONCRETE CUBES

Lab ID : **CP-2020-09-14-38** **Date: 04/09/2020**

Customer : Assistant Executive Engineer, Kodigehalli Sub Division, BBMP, Bangalore.

Address : Kodigehalli Sub Division, BBMP, Bangalore.

Project Name : Improvements to Roads at Deo Residency and Legacy Area of Jakkur Plantation in Ward No 07, Byatarayanapura.

Agency : Executive Engineer, Karnataka Rural Infrastructure Development Ltd, #280, 59th Cross Road, 17th 'C' Main Road, 3rd 'Y' Block, Rajajinagara, Bangalore-560010

Customer's Reference : BBMP/EE/BTP/WO/107/2017-18

Source of Sample : Sample supplied by Agency

Sample Condition : Satisfactory

Date of Receipt : 31-08-20

Customer ID : PCC

Sample Type /Size : 150X150X150 mm

Sample grade/Age : M15 / 7 Days Compressive Strength

Reference to BIS codes : IS: 516 - 1959 Methods of Tests for Strength of Concrete Cl.5

Date of test : 04/09/2020

Sl. No.	Identification Mark	Grade of concrete	Date of Casting	Date of Testing	Dimension of the Specimen (mm)	Cross sectional area (Sq.mm)	Weight of the sample (kg)	Failure Load (KN)	Compressive strength (N/mm^2)	Average Compressive Strength (N/mm^2)
1	PCC	M15	28/08/2020	04/09/2020	151.82 X 149.50 X 150.68	22697	**8.361**	277.2	12.2	12.2
2	PCC	M15	28/08/2020	04/09/2020	149.69 X 151.32 X 151.00	22652	**8.311**	277.6	12.3	
3	PCC	M15	28/08/2020	04/09/2020	150.28 X 150.36 X 149.28	22596	**8.672**	277.5	12.3	

Note:

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All information furnished by Customer/Representative
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AE(W)

Assistant Executive Engineer,
Kodigehalli Sub Division,
Yelahanka Zone, B.B.M.P.,
Bangalore.

CIVIL PRO Sig. Date

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Authorized Signatory
Technical Manager

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TEST REPORT OF CEMENT CONCRETE CUBES

Lab ID : **CP-2020-09-14-38** **Date: 25/09/2020**

Customer : Assistant Executive Engineer, Kodigehalli Sub Division, BBMP, Bangalore.

Address : Kodigehalli Sub Division, BBMP, Bangalore.

Project Name : Improvements to Roads at Deo Residency and Legacy Area of Jakkur Plantation in Ward No 07, Byatarayanapura.

Agency : Executive Engineer, Karnataka Rural Infrastructure Development Ltd, #280, 59th Cross Road, 17th 'C' Main Road, 3rd 'Y' Block, Rajajinagara, Bangalore-560010

Customer's Reference : BBMP/EE/BTP/WO/107/2017-18

Source of Sample : Sample supplied by Agency

Sample Condition : Satisfactory

Date of Receipt : 31-08-20

Customer ID : PCC

Sample Type /Size : 150X150X150 mm

Sample grade/Age : M15 / 28 Days Compressive Strength

Reference to BIS codes : IS: 516 - 1959 Methods of Tests for Strength of Concrete Cl.5

Date of test : 25/09/2020

Sl. No.	Identification Mark	Grade of concrete	Date of Casting	Date of Testing	Dimension of the Specimen (mm)	Cross sectional area (Sq.mm)	Weight of the sample (kg)	Failure Load (KN)	Compressive strength (N/mm^2)	Average Compressive Strength (N/mm^2)
1	PCC	M15	28/08/2020	25/09/2020	151.08 X 151.90 X 151.46	22950	**8.028**	398.1	17.3	17.3
2	PCC	M15	28/08/2020	25/09/2020	149.96 X 150.13 X 149.14	22512	**8.008**	394.5	17.5	
3	PCC	M15	28/08/2020	25/09/2020	151.33 X 151.47 X 150.62	22921	**8.911**	393.3	17.2	

Note:
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AE(W1)

Assistant Executive Engineer,
Kodigehalli Sub Division,
Yelahanka Zone, B.B.M.P.,
Bangalore.

CIVIL Pro Sig Date BANGALORE

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R RUDRAPRASAD
Authorized Signatory
Technical Manager

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CEMENT CONCRETE PRECAST CONCRETE BLOCKS FOR PAVING

Lab ID	:	**CP-2020-09-14-38** **Date: 12-09-20**
Customer	:	Assistant Executive Engineer, Kodigehalli Sub Division, BBMP, Bangalore.
Address	:	Kodigehalli Sub Division, BBMP, Bangalore.
Project Name	:	Improvements to Roads at Deo Residency and Legacy Area of Jakkur Plantation in Ward No 07, Byatarayanapura.
Agency	:	Executive Engineer, Karnataka Rural Infrastructure Development Ltd, #280, 59th Cross Road, 17th 'C' Main Road, 3rd 'Y' Block, Rajajinagara, Bangalore-560010
Customer Reference	:	BBMP/EE/BTP/WO/107/2017-18
Source of Sample	:	Sample supplied by Agency
Sample Condition	:	Satisfactory
Date of Receipt	:	07-09-20
Sample Type/ Size	:	Precast concrete blocks for paving
Reference to BIS codes	:	IS 15658:2006
Date of test	:	07-09-20

1.Compressive Strength

Sl.No.	Dimension (mm)			Compressive Strength	Average
	L	B	T	(N/mm^2)	(N/mm^2)
1	197.22	159.88	60.99	32.5	33.1
2	198.48	159.64	60.25	33.8	
3	199.54	159.54	60.48	32.5	
4	197.68	159.22	60.55	33.5	
5	198.11	159.87	60.32	32.8	
6	198.18	160.02	60.11	33.4	
7	198.45	158.99	60.98	33.2	
8	197.22	159.22	60.12	32.8	

2. Water Absorption

Sl.No.	Wet Weight	Dry weight	Thickness	Water Absorption (%)	Average (%)
1	4.987	4.828	60.85	3.29	3.64
2	4.898	4.721	60.22	3.75	
3	4.988	4.802	60.44	3.87	

Note:
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AE(CC1)

Assistant Executive Engineer,
Kodigehalli Sub Division,
Yelahanka Zone, B.B.M.P.
Bangalore.

CIVIL Pro Sig. Date BANGALORE

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End of Report

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TEST RESULTS OF GRADATION FOR WMM

Lab ID : **CP-RW-2020-09-14-38** **Date: 04-09-20**

Customer : Assistant Executive Engineer, Kodigehalli Sub Division, BBMP, Bangalore.

Address : Kodigehalli Sub Division, BBMP, Bangalore.

Project Name : Improvements to Roads at Deo Residency and Legacy Area of Jakkur Plantation in Ward No 07, Byatarayanapura.

Agency : Executive Engineer, Karnataka Rural Infrastructure Development Ltd, #280, 59th Cross Road, 17th 'C' Main Road, 3rd 'Y' Block, Rajajinagara, Bangalore-560010

Customer Reference : BBMP/EE/BTP/WO/107/2017-18

Source of Sample : Sample supplied by Agency

Sample Condition : Satisfactory

Date of Receipt : 02-09-20

Type of Mix : WMM (Wet Mix Macadam)

Date of test : 02-09-20

Oven Dry Weight : 11000 Grams

IS Sieve Size(mm)	Weight Retained (gm)	Cumulative Weight Retained (gm)	% Cumulative Weight Retained	% Passing	Spec.I.Vide Table 400.13 MORTH Specification
53	0	0	0.0	100.0	100
45	315	315	2.9	97.1	95-100
22.4	2259	2574	23.4	76.6	60-80
11.2	2179	4753	43.2	56.8	40-60
4.75	2251	7004	63.7	36.3	25-40
2.36	1621	8625	78.4	21.6	15-30
0.6	623	9248	84.1	15.9	8-22
0.075	1338	10586	96.2	3.8	0-5

Note:-

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All information Furnished by Customer/ Representative
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AE (WS)

Assistant Executive Engineer,
Kodigehalli Sub Division,
Yelahanka Zone, B.B.M.P.,
Bangalore.

CIVIL Pro
Sig
Date
BANGALORE

FOR CIVIL Pro.
R RUDRAPRASAD
Authorized Signatory
Technical Manager

M : 9972924526 | Tel : +91 80 23444801 | e : rechan6630@yahoo.co.in, civilproexperts@gmail.com

TEST REPORT OF AGGEGRATE IMPACT VALUE
IS: 2386 Part IV

Lab ID	:	**CP-RW-2020-09-14-38** **Date: 04-09-20**
Customer	:	Assistant Executive Engineer, Kodigehalli Sub Division, BBMP, Bangalore.
Address	:	Kodigehalli Sub Division, BBMP, Bangalore.
Project Name	:	Improvements to Roads at Deo Residency and Legacy Area of Jakkur Plantation in Ward No 07, Byatarayanapura.
Agency	:	Executive Engineer, Karnataka Rural Infrastructure Development Ltd, #280, 59th Cross Road, 17th 'C' Main Road, 3rd 'Y' Block, Rajajinagara, Bangalore-560010
Customer Reference	:	BBMP/EE/BTP/WO/107/2017-18
Source of Sample	:	Sample supplied by Agency
Sample Condition	:	Satisfactory
Date of Receipt	:	02-09-20
Type of Mix	:	Coarse Aggregate for WMM (Wet Mix Macadam)
Date of test	:	02-09-20

Sl.No	Particulars of observations	Index	TEST 1	TEST 2
1	Total weight of the surface dry sample sample (passing 12.5 mm and retained on 10mm sieve)	A	300.2	300.2
2	Weight of fraction passing 2.36mm sieve After giving 15 blows	B	73.9	74.0
3	weight of fraction retained 2.36mm sieve After giving 15 blows	C	225.9	225.8
4	Total weight of (B+C) is less than the initial weight (Weight A) by more than one gram the result shall be discarded and a fresh test made.	A-(B+C)	0.4	0.4
5	Aggregate impact value	(B/A)*100	24.6	24.7
6	Aggregate impact value (Mean of two tests)	Pecentage	24.6	

Note:-
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Assistant Executive Engineer,
Kodigehalli Sub Division,
Yelahanka Zone, B.B.M.P.
Bangalore.

CIVIL Pro Sig Date BANGALORE

FOR CIVIL Pro.
R RUDRAPRASAD
Authorized Signatory
Technical Manager

End of Report

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DETERMINATION OF FLAKINESS INDEX AND ELONGATION INDEX OF COARSE AGGREGATE(IS 2386 (Part 1) 1963 (RA 2007)

Lab ID	:	**CP-RW-2020-09-14-38** **Date: 04-09-20**
Customer	:	Assistant Executive Engineer, Kodigehalli Sub Division, BBMP, Bangalore.
Address	:	Kodigehalli Sub Division, BBMP, Bangalore.
Project Name	:	Improvements to Roads at Deo Residency and Legacy Area of Jakkur Plantation in Ward No 07, Byatarayanapura.
Agency	:	Executive Engineer, Karnataka Rural Infrastructure Development Ltd, #280, 59th Cross Road, 17th 'C' Main Road, 3rd 'Y' Block, Rajajinagara, Bangalore-560010
Customer Reference	:	BBMP/EE/BTP/WO/107/2017-18
Source of Sample	:	Sample supplied by Agency
Sample Condition	:	Satisfactory
Date of Receipt	:	02-09-20
Type of Mix	:	Coarse Aggregate for WMM (Wet Mix Macadam)
Date of test	:	02-09-20

Result:

Index	Percentage of Flakiness and Elongation Index	Secified limits as per MORTH specification table 400-12
Flakiness Index	12.8%	Combined Flakiness & Elongation Index for WMM is Maximum 35%
Elongation Index	12.5%	
Combined Flakiness and Elongation Index for WMM	25.3%	

Note:-
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All information Furnished by Customer/ Representative
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CIVIL Pro Sig. Date. BANGALORE

R RUDRAPRASAD
Authorized Signatory
Technical Manager

AEE(Cust)

Assistant Executive Engineer,
Kodigehalli Sub Division,
Yelahanka Zone, B.B.M.P.,
Bangalore.

End of Report

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4, 7TH MAIN MALLESWARAM, BANGALORE -3
Certificate No.: TC-5548

TEST RESULTS OF GRADATION FOR BC
IS 2386 (Part 1) 1963 (RA 2007)

Lab ID	:	**CP-RW-2020-09-14-38** **Date: 14-09-20**
Customer	:	Assistant Executive Engineer, Kodigehalli Sub Division, BBMP, Bangalore.
Address	:	Kodigehalli Sub Division, BBMP, Bangalore.
Project Name	:	Improvements to Roads at Deo Residency and Legacy Area of Jakkur Plantation in Ward No 07, Byatarayanapura.
Agency	:	Executive Engineer, Karnataka Rural Infrastructure Development Ltd, #280, 59th Cross Road, 17th 'C' Main Road, 3rd 'Y' Block, Rajajinagara, Bangalore-560010
Customer Reference	:	BBMP/EE/BTP/WO/107/2017-18
Source of Sample	:	Sample supplied by Agency
Sample Condition	:	Satisfactory
Date of Receipt	:	12-09-20
Type of Mix	:	BC-Plant (Bituminous Concrete)
Date of test	:	12-09-20
Oven Dry Weight	:	5000 Grams

IS Sieve Size (mm)	Weight Retained (gm)	Comulative Weight Retained (gm)	Comulative % of Retained	Comulative % of Passing	Secified limits as per MORTH specification table 500-17(grading-2)
19	0	0	0.0	100.0	100
13.2	89	89	1.8	98.2	90-100
9.5	702	791	15.8	84.2	70-88
4.75	895	1686	33.7	66.3	53-71
2.36	587	2273	45.5	54.5	42-58
1.18	492	2765	55.3	44.7	34-48
0.6	503	3268	65.4	34.6	26-38
0.3	528	3796	75.9	24.1	18-28
0.15	458	4254	85.1	14.9	12-20
0.075	350	4604	92.1	7.9	4-10
PAN	396	5000	100	0.0	0

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Assistant Executive Engineer,
Kodigehalli Sub Division,
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TEST REPORT OF AGGEGRATE STRIPPING VALUE OF ROAD AGGRGATE (IS:6241)

Lab ID	:	**CP-RW-2020-09-14-38** **Date: 15-09-20**
Customer	:	Assistant Executive Engineer, Kodigehalli Sub Division, BBMP, Bangalore.
Address	:	Kodigehalli Sub Division, BBMP, Bangalore.
Project Name	:	Improvements to Roads at Deo Residency and Legacy Area of Jakkur Plantation in Ward No 07, Byatarayanapura.
Agency	:	Executive Engineer, Karnataka Rural Infrastructure Development Ltd, #280, 59th Cross Road, 17th 'C' Main Road, 3rd 'Y' Block, Rajajinagara, Bangalore-560010
Customer Reference	:	BBMP/EE/BTP/WO/107/2017-18
Source of Sample	:	Sample supplied by Agency
Sample Condition	:	Satisfactory
Date of Receipt	:	12-09-20
Type of Mix	:	BC(Bitumenous Concrete)
Date of test	:	12-09-20

Type of Binder	:	60/70
% of Binder Used	:	5.0%
Weight of Aggregate	:	200.0 gm
Weight of Binder	:	10.0 gm
Temperature of water bath	:	40°C

No of test	Retained Stripping Percentage	Stripping Percentage	Average Retained Stripping Percentage	Secified limits as per MORTH specification table 500-8
1	98.5	1.5	98.3	Minimum Retained Coating 95%
2	98.5	1.5		
3	98.0	2.0		

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PHYSICAL REQUIREMENTS FOR COARSE AGGREGATE FOR BITUMINOUS CONCRETE

Lab ID : **CP-RW-2020-09-14-38** **Date: 15-09-20**

Customer : Assistant Executive Engineer, Kodigehalli Sub Division, BBMP, Bangalore.

Address : Kodigehalli Sub Division, BBMP, Bangalore.

Project Name : Improvements to Roads at Deo Residency and Legacy Area of Jakkur Plantation in Ward No 07, Byatarayanapura.

Agency : Executive Engineer, Karnataka Rural Infrastructure Development Ltd, #280, 59th Cross Road, 17th 'C' Main Road, 3rd 'Y' Block, Rajajinagara, Bangalore-560010

Customer Reference : BBMP/EE/BTP/WO/107/2017-18

Source of Sample : Sample supplied by Agency

Sample Condition : Satisfactory

Date of Receipt : 12-09-20

Type of Mix : BC (Bituminous Concrete)

Date of test : 12-09-20

Table 500-16 : Physical Requirements fo Coarse Aggregate for Bituminous Concrete

Property	Test	Result	Specification	Method of Test
Partical Shape	Flakiness Index	12.4	Combined Flakiness & Elongation Index for BC is Maximum 35%	IS:2386 Part I
	Elongation Index	11.8		
Strength	Aggregate Impact Value	22.1	Maximum 24%	IS:2386 Part IV
Specific gravity	Specific gravity	2.68	Maximum 2.7	IS:2386 Part III
Water Absorption	Water Absorption	0.21	Maximum 2%	IS:2386 Part III

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TESTS RESULTS ON STABILITY OF MIX

Lab ID	:	**CP-RW-2020-09-14-38** **Date: 15-09-20**
Customer	:	Assistant Executive Engineer, Kodigehalli Sub Division, BBMP, Bangalore.
Address	:	Kodigehalli Sub Division, BBMP, Bangalore.
Project Name	:	Improvements to Roads at Deo Residency and Legacy Area of Jakkur Plantation in Ward No 07, Byatarayanapura.
Agency	:	Executive Engineer, Karnataka Rural Infrastructure Development Ltd, #280, 59th Cross Road, 17th 'C' Main Road, 3rd 'Y' Block, Rajajinagara, Bangalore-560010
Customer Reference	:	BBMP/EE/BTP/WO/107/2017-18
Source of Sample	:	Hot Mix Plant, Bangalore
Sample Condition	:	Satisfactory
Date of Receipt	:	12-09-20
Type of Mix	:	BC (Bituminous Concrete)
Date of test	:	12-09-20

The results of the tests conducted on the Bituminous Concrete mix sample are as follow

Sl.No	Particulars of observations	TEST 1	TEST 2	Secified limits as per MORTH specification table 500-11
1	Marshal Stability at 60°C, KN	11.14	11.13	10KN(min)
2	Marshal flow at 60°C, mm	3.52	3.51	2-4
3	Percent air Voids	4.82	4.83	3-5
4	Percent Voids in mineral Aggregate(VMA %)	14.28	14.26	13-15
5	Percent Voids filled with Bitumen(VFB %)	71.87	71.63	65-75
6	Density, g/cc	2.25	2.26	–

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TEST RESULTS OF BITUMEN BINDAR CONTENT AND GRADATION FOR BC
IS 2386 (Part 1) 1963 (RA 2011)

Lab ID : **CP-RW-2020-09-14-38** **Date: 19-09-20**

Customer : Assistant Executive Engineer, Kodigehalli Sub Division, BBMP, Bangalore.

Address : Kodigehalli Sub Division, BBMP, Bangalore.

Project Name : Improvements to Roads at Deo Residency and Legacy Area of Jakkur Plantation in Ward No 07, Byatarayanapura.

Agency : Executive Engineer, Karnataka Rural Infrastructure Development Ltd, #280, 59th Cross Road, 17th 'C' Main Road, 3rd 'Y' Block, Rajajinagara, Bangalore-560010

Customer Reference : BBMP/EE/BTP/WO/107/2017-18

Source of Sample : Sample supplied by Agency

Date of Receipt : 18-09-20

Type of Mix : BC (Bituminous Concrete)

Date of test : 18-09-20

Sl.no	Description	Index	Trail 1	Trail 2
1	Weight of the Sample	A	500	500
2	Weight of the sample After extraction	B	469	468
3	Bitumen percentage	$\frac{A-B}{A} \times 100$	6.20	6.40
4	Average percentage	%	6.3	

Assistant Executive Engineer,
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Lab ID : **CP-RW-2020-09-14-38** **Date: 19-09-20**

AFTER EXTRACTION - Trail-1

Total Weight of the Sample(gm) : 469

IS Sieve Size (mm)	Weight Retained (gm)	Comulative Weight Retained (gm)	Comulative % of Retained	Comulative % of Passing	Secified limits as per MORTH specification table 500-23(grading-2)
19	0	0	0.0	100.0	100
13.2	4	4	0.9	99.1	90-100
9.5	62	66	14.1	85.9	70-88
4.75	112	178	38.0	62.0	53-71
2.36	88	266	56.7	43.3	42-58
1.18	29	295	62.9	37.1	34-48
0.6	11	306	65.2	34.8	26-38
0.3	46	352	75.1	24.9	18-28
0.15	45	397	84.6	15.4	12-20
0.075	52	449	95.7	4.3	4-10

AFTER EXTRACTION - Trail-2

Total Weight of the Sample(gm) : 468

IS Sieve Size (mm)	Weight Retained (gm)	Comulative Weight Retained (gm)	Comulative % of Retained	Comulative % of Passing	Secified limits as per MORTH specification table 500-23(grading-2)
19	0	0	0.0	100.0	100
13.2	4	4	0.9	99.1	90-100
9.5	62	66	14.1	85.9	70-88
4.75	112	178	38.0	62.0	53-71
2.36	88	266	56.8	43.2	42-58
1.18	29	295	63.0	37.0	34-48
0.6	11	306	65.4	34.6	26-38
0.3	46	352	75.2	24.8	18-28
0.15	45	397	84.8	15.2	12-20
0.075	52	449	95.9	4.1	4-10

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AE(Civil) N.D

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Format No: CP/TF/01

TEST REPORT ON BITUMEN

Lab ID	:	**CP-RW-2020-09-14-38** **Date: 11-09-20**
Customer	:	Assistant Executive Engineer, Kodigehalli Sub Division, BBMP, Bangalore.
Address	:	Kodigehalli Sub Division, BBMP, Bangalore.
Project Name	:	Improvements to Roads at Deo Residency and Legacy Area of Jakkur Plantation in Ward No 07, Byatarayanapura.
Agency	:	Executive Engineer, Karnataka Rural Infrastructure Development Ltd, #280, 59th Cross Road, 17th 'C' Main Road, 3rd 'Y' Block, Rajajinagara, Bangalore-560010
Customer's Reference	:	BBMP/EE/BTP/WO/107/2017-18
Source of Sample	:	Sample supplied by Agency
Sample Condition	:	Satisfactory
Date of Receipt	:	09-09-20
Sample Type	:	Bitumen
Reference to BIS codes	:	IS: 1201-1220(1978) (Reaffirmed-2004)
Date of test	:	09-09-20

Test Results

Sl.no	Name of Test	Result	Requirements as per IS:73-2013
1	Penetration at 25°C , in 1/10th mm	64	60 to 70
2	Softening Point, °C	51.2	Min. 40°C
3	Ductility, cm	98	Min. 75cm
4	Flash point, °C	245	Min. 220°C
	Fire point, °C	272	

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AE(W&P)

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DETERMINATION OF RATE OF SPREAD TACK COAT

Lab ID	:	**CP-RW-2020-09-14-38** **Date: 19-09-20**
Customer	:	Assistant Executive Engineer, Kodigehalli Sub Division, BBMP, Bangalore.
Address	:	Kodigehalli Sub Division, BBMP, Bangalore.
Project Name	:	Improvements to Roads at Deo Residency and Legacy Area of Jakkur Plantation in Ward No 07, Byatarayanapura.
Agency	:	Executive Engineer, Karnataka Rural Infrastructure Development Ltd, #280, 59th Cross Road, 17th 'C' Main Road, 3rd 'Y' Block, Rajajinagara, Bangalore-560010
Customer Reference	:	BBMP/EE/BTP/WO/107/2017-18
Sample Condition	:	Satisfactory
Date of Receipt	:	18-09-20
Type of Mix	:	Tack coat
Date of test	:	18-09-20

Sl.No	Determination	Unit	TEST 1	TEST 2
1	Size of Plate (mxm)	Mt	0.30 x .30	0.30 x .30
2	Area of Plate (a)	Sq.mtr	0.09	0.09
3	Initial Wt of empty Plate (b)	Kg	0.78	0.748
4	Final weight of plate after application of tack Coat (c)	Kg	0.803	0.771
5	Weight of tack Coat (d=c-b)	Kg	0.023	0.023
6	Rate of spread of tack coat	Kg/sq.m	0.256	0.256
7	Average	Kg/sq.m	0.256	
8	Specified Limit	Kg/sq.m	0.250 Kg/sq.m	

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AE (WS)